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Date: February 4, 2004

*Sonia V. McVean*  
Sonia V. McVean



**PATENT**  
50626.17

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of: Neil McLELLAN et al.	Art Unit: 1765
Serial No.: 09/802,678	Examiner: Unknown
Filing Date: March 09, 2001	
For: LEADLESS PLASTIC CHIP CARRIER WITH ETCH BACK PAD SINGULATION	

**COMMENTARY RE INFORMATION DISCLOSURE STATEMENT**

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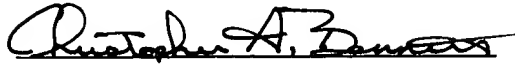
Dear Sir:

In accordance with 37 CFR §1.56, and in recognition of their duty to disclose to the United States Patent and Trademark Office relevant information known to be material to patentability, Applicants herewith submit a copy of the prior art listed on the attached Information Disclosure Statement (Form PTO-1449), including English abstracts where needed. The statement is not a representation that all of the information cited is necessarily effective as prior art against the application.

Applicants respectfully request that the disclosed reference be made of record in the subject application.

Respectfully submitted,

Date: February 4, 2004

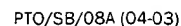
A handwritten signature in black ink, appearing to read "Christopher A. Bennett", written over a horizontal line.

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Joseph R. Keating  
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Facsimile: (703) 385-5080



Substitute for form 1449-PTD

(Use as many sheets as necessary)

Sheet	1	of	1
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Sheet	1	of	1
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*Complete if Known*

Application Number	<b>09/802,678</b>
Filing Date	<b>March 9, 2001</b>
First Named Inventor	<b>Neil McLELLAN</b>
Art Unit	<b>1765</b>
Examiner Name	
Attorney Docket Number	<b>50626.17</b>

## U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)	MM -YYYY		
	1	US2003/0015780	01/2003	Kang et al.	
	2	4,685,998	08/1987	Quinn et al.	
	3	5,066,831	11/1991	Spielerger et al.	
	4	5,293,072	03/1994	Tsuji et al.	
	5	5,444,301	08/1995	Song et al.	
	6	5,777,382	07/19888	Abbott et al.	
	7	6,057,601	05/2000	Lau et al.	
	8	6,194,786	02/2001	Orcutt	
	9	6,229,200	05/2001	McIellan et al.	
	10	6,294,830	09/2001	Fjelstad	
	11	6,306,685	10/2001	Liu et al.	
	12	6,459,163	10/2002	Bai	
	13	6,498,099	12/2002	McIellan et al.	
	14	6,528,877	03/2003	Ernst et al.	
	15	6,585,905	07/2003	Fan et al.	
	16	6,635,957	10/2003	Kwan et al.	

## FOREIGN PATENT DOCUMENTS

[illegible]Examiner  
SignatureDate  
Considered

\*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered, include copy of this form with next communication to applicant.

<sup>1</sup> Applicant unique citation designation number (optional). <sup>2</sup> See Kind Codes of USPTO Patent documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Abstract is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14.



A DOCPHOENIX

FOLLOW-ON DOCUMENT INDEX SHEET

## INCOMING

\_\_\_\_ ACPA \_\_\_\_  
Continuing Prosecution Application

\_\_\_\_ AP.B \_\_\_\_  
Appeal Brief

\_\_\_\_ C680 \_\_\_\_  
Request for Corrected Notice/Allowance

\_\_\_\_ C.AD \_\_\_\_  
Change of Address

\_\_\_\_ CFILE \_\_\_\_  
Request for Corrected Filing Receipt

\_\_\_\_ COCIN \_\_\_\_  
Papers filed re Certificate of Corrections

\_\_\_\_ CRFD \_\_\_\_  
Computer Readable Form Defective

\_\_\_\_ CRFE \_\_\_\_  
Computer Readable Form 'ENTERED'

\_\_\_\_ EABN \_\_\_\_  
Request for Express Abandonment

\_\_\_\_ ELC. \_\_\_\_  
Response to Election/Restriction

\_\_\_\_ IFEF \_\_\_\_  
Issue Fee Transmittal PTOL 85 B

\_\_\_\_ IRFND \_\_\_\_  
Refund Request

\_\_\_\_ L\_RIN \_\_\_\_  
Any Incoming to L&R

\_\_\_\_ N417 \_\_\_\_  
Copy of EFS Receipt Acknowledgement

\_\_\_\_ N/AP \_\_\_\_  
Notice of Appeal

\_\_\_\_ PA.. \_\_\_\_  
Change in Power of Attorney

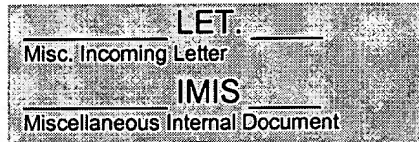
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Pre-Exam Formalities Response

\_\_\_\_ PEFRRFESS \_\_\_\_  
Pre-Exam Formalities Reissue Response

\_\_\_\_ PEFRRSEQ \_\_\_\_  
Pre-Exam Formalities Sequence Reply

## INCOMING



\_\_\_\_ PGEA \_\_\_\_  
Req Express Aband to avoid Publication

\_\_\_\_ PGA9 \_\_\_\_  
Req for Corrected Pat App Publication

\_\_\_\_ PGREF \_\_\_\_  
Req for Refund of Publication Fee Paid

\_\_\_\_ PROTEST \_\_\_\_  
Protest Documents Filed by 3<sup>rd</sup> Party

\_\_\_\_ PROTRANS \_\_\_\_  
Translation of Provisional in Nonprovisional

\_\_\_\_ REM \_\_\_\_  
Applicant Remarks in Amendment

\_\_\_\_ RESC \_\_\_\_  
Rescind Non-Publication Request

\_\_\_\_ ROCKET \_\_\_\_  
Request for Design Processing

\_\_\_\_ XT/ \_\_\_\_  
Extension of Time filed separate

## APPL PARTS

\_\_\_\_ 371P \_\_\_\_  
PCT Papers in a 371 Application

\_\_\_\_ A... \_\_\_\_  
Amendment Including Elections

\_\_\_\_ A.NE \_\_\_\_  
After Final Amendment

\_\_\_\_ A.PE \_\_\_\_  
Preliminary Amendment

\_\_\_\_ ABST \_\_\_\_  
Abstract

\_\_\_\_ ADS \_\_\_\_  
Application Data Sheet

\_\_\_\_ AF/D \_\_\_\_  
Affidavit or Exhibit Received

\_\_\_\_ APPENDIX \_\_\_\_  
Appendix

## APPL PARTS

\_\_\_\_ ARTIFACT \_\_\_\_  
Artifact

\_\_\_\_ CLM \_\_\_\_  
Claim

\_\_\_\_ COMPUTER \_\_\_\_  
Computer Program Listing

\_\_\_\_ CRFL \_\_\_\_  
CRF Transfer Request

\_\_\_\_ CRFS \_\_\_\_  
Computer Readable Form Statement

\_\_\_\_ DIST \_\_\_\_  
Terminal Disclaimer Filed

\_\_\_\_ DRW \_\_\_\_  
Drawings

\_\_\_\_ FOR \_\_\_\_  
Foreign Reference

\_\_\_\_ FRPR \_\_\_\_  
Foreign Priority Papers

\_\_\_\_ IDS \_\_\_\_  
IDS Including 1449

\_\_\_\_ NPL \_\_\_\_  
Non-Patent Literature

\_\_\_\_ OATH \_\_\_\_  
Oath or Declaration

\_\_\_\_ PET. \_\_\_\_  
Petition

\_\_\_\_ RUSH \_\_\_\_  
OPUBS Printer Query

\_\_\_\_ SEQLIST \_\_\_\_  
Sequence Listing

\_\_\_\_ SPEC \_\_\_\_  
Specification

\_\_\_\_ SPEC NO \_\_\_\_  
Specification Not in English



US 20030015780A1

(19) **United States**(12) **Patent Application Publication** (10) Pub. No.: **US 2003/0015780 A1****Kang et al.**(43) Pub. Date: **Jan. 23, 2003**(54) **BUMPED CHIP CARRIER PACKAGE USING  
LEAD FRAME AND METHOD FOR  
MANUFACTURING THE SAME**(52) U.S. Cl. .... 257/684; 257/738; 257/737;  
257/796(76) Inventors: **In Ku Kang, Cheonan-city (KR); Sang  
Ho Ahn, Suwon-city (KR)**(57) **ABSTRACT**

Correspondence Address:  
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Suite 2000  
1101 Wilson Boulevard  
Arlington, VA 22209 (US)

(21) Appl. No.: **10/118,944**(22) Filed: **Apr. 10, 2002**(30) **Foreign Application Priority Data**

Jul. 19, 2001 (KR) ..... 2001-43446

**Publication Classification**(51) Int. Cl.<sup>7</sup> ..... H01L 23/06; H01L 23/48;  
H01L 23/52; H01L 23/28

An improved bumped chip carrier (BCC) package according to the present invention includes a resin-molded lead frame encapsulating an attached semiconductor integrated circuit (IC) and a plurality of interconnecting wire bonds attaching a plurality of contact pads on the IC to an associated plurality of solder-covered external contact terminals that are integrated in the lead frame. By integrally processing the external contact terminals, bonding wires may be affixed using a single wire bonding process. A method for manufacturing the BCC package preferably includes a dual photoresist patterning process accompanied by a dual wet etching process to create a plurality of highly reliable external contact terminals having improved bonding between the contact terminals and the encapsulating resin mold.

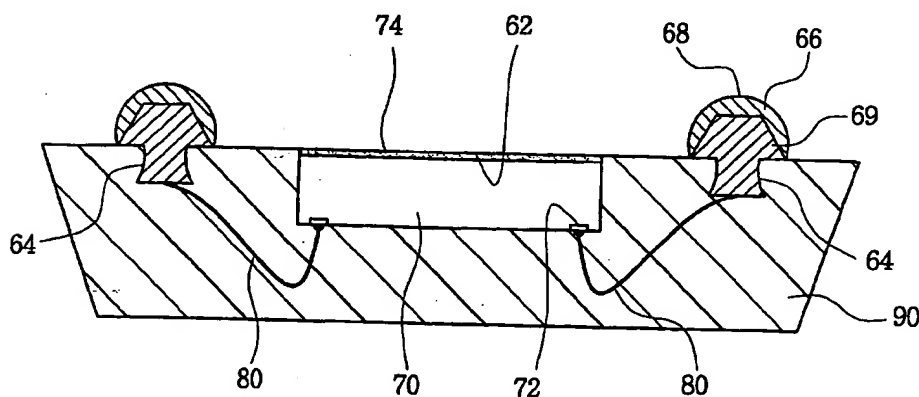


FIG. 1  
(PRIOR ART)

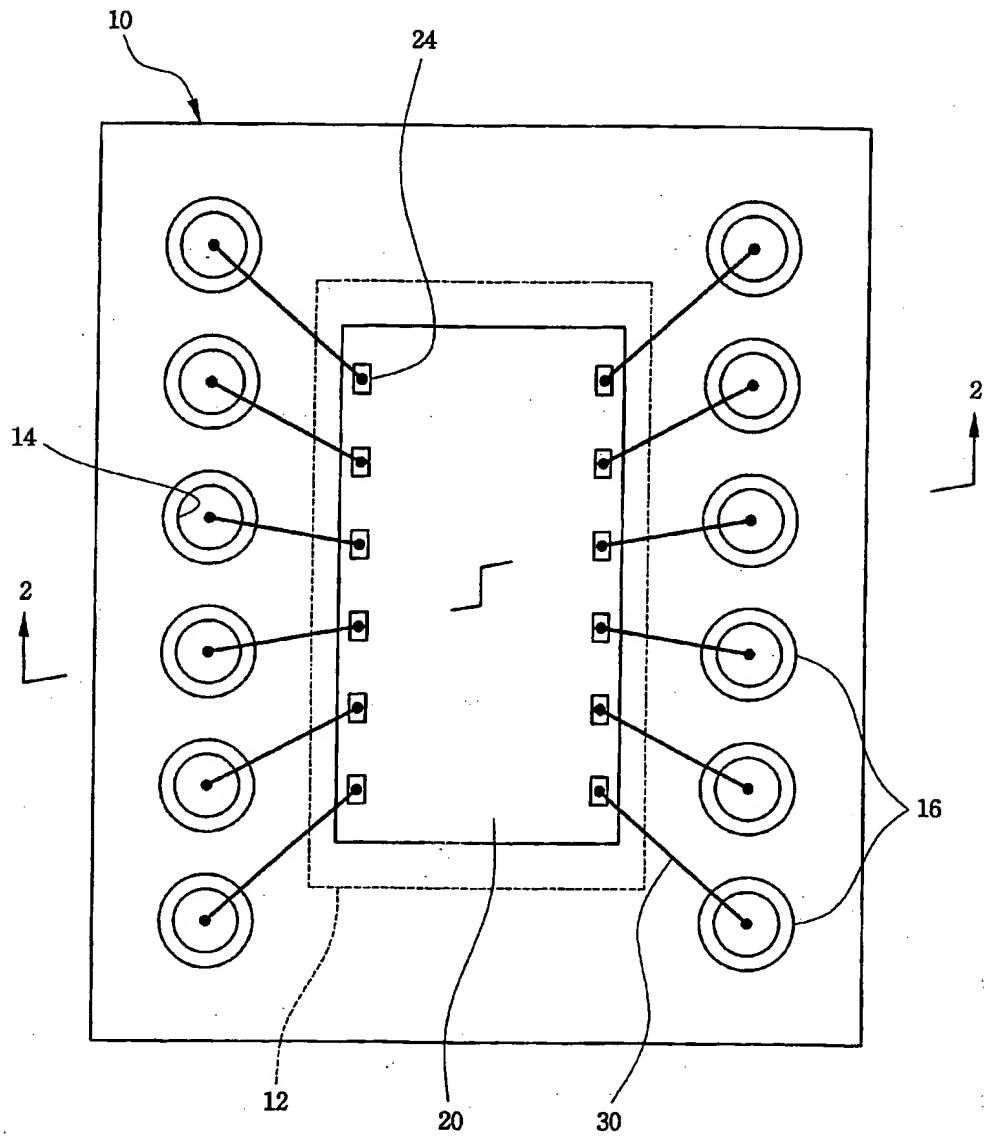


FIG. 2  
(PRIOR ART)

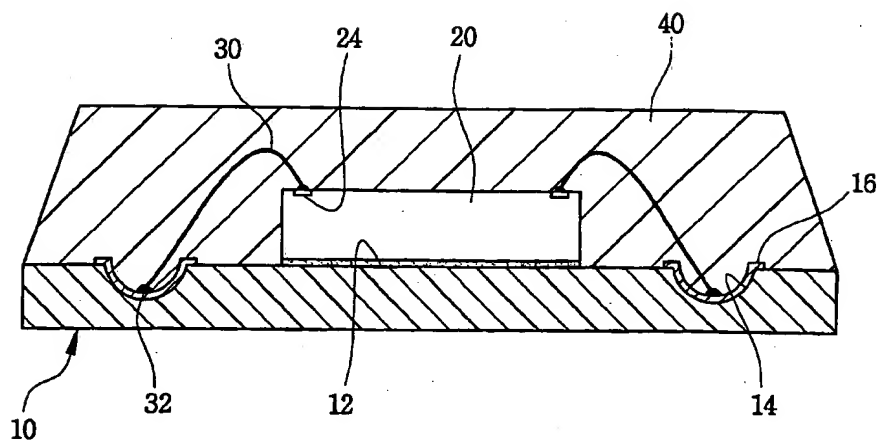


FIG. 3  
(PRIOR ART)

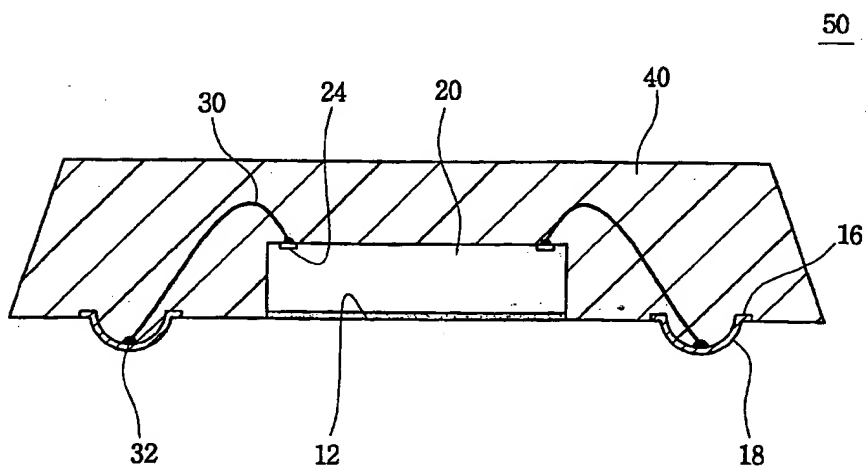


FIG. 4

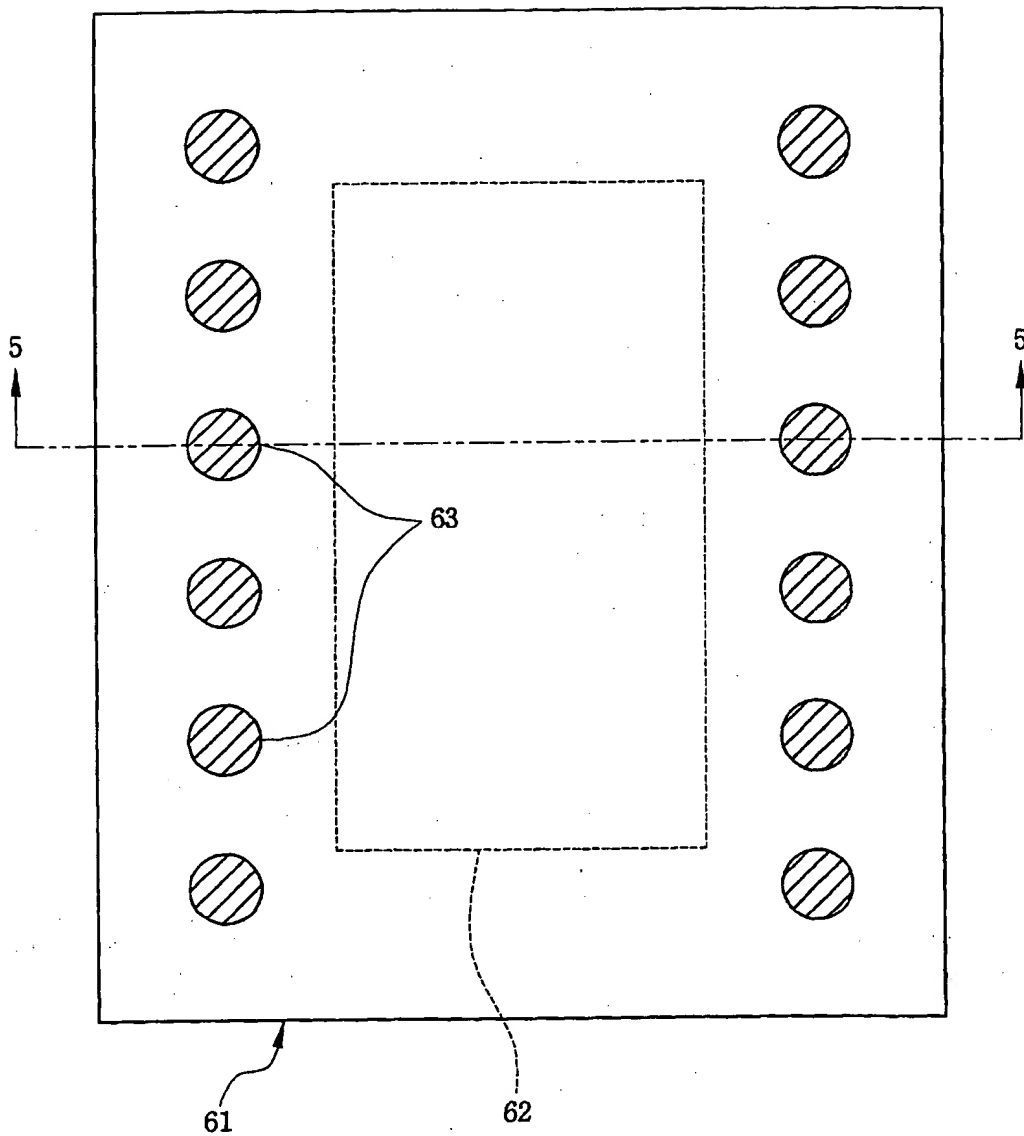




FIG. 5

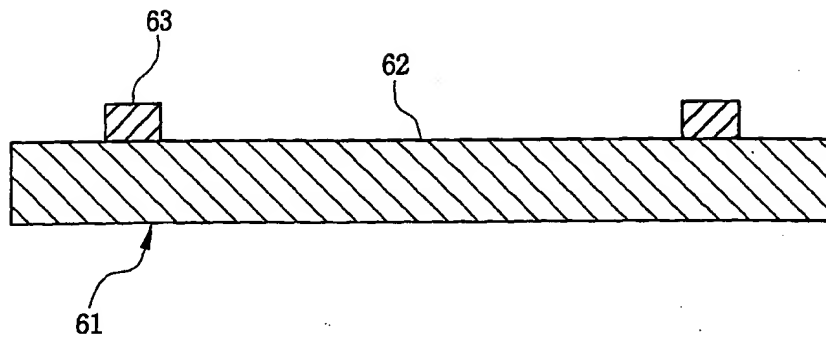


FIG. 6

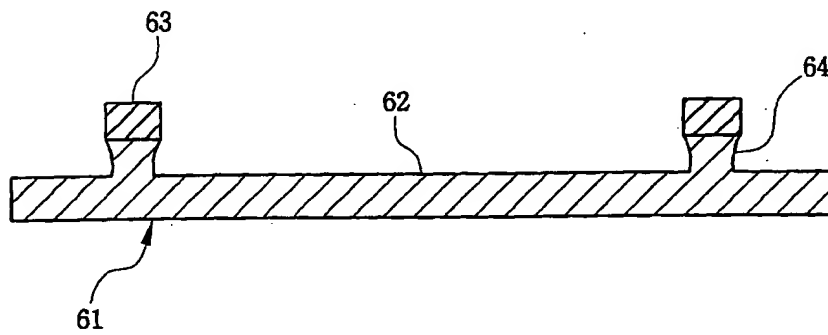


FIG. 7

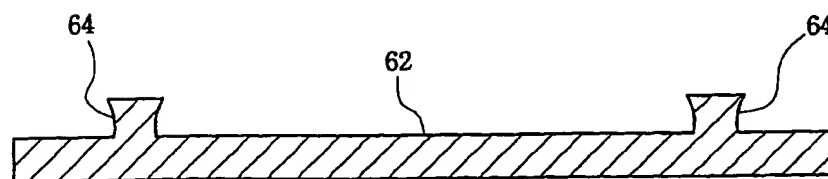


FIG. 8

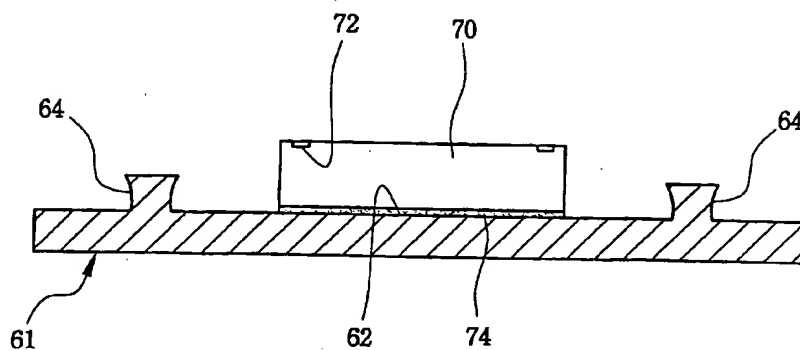


FIG. 9

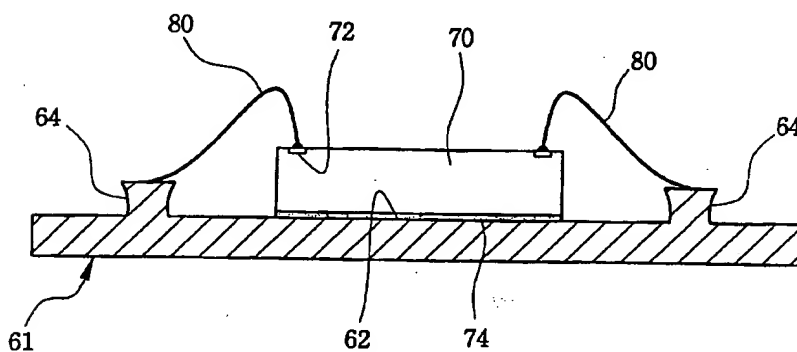


FIG. 10

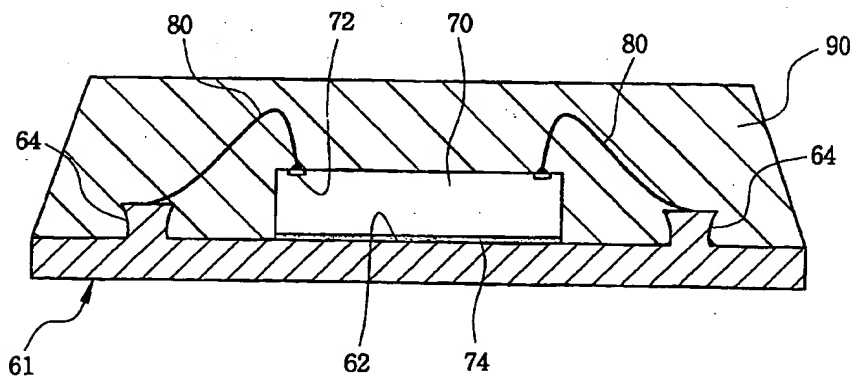


FIG. 11

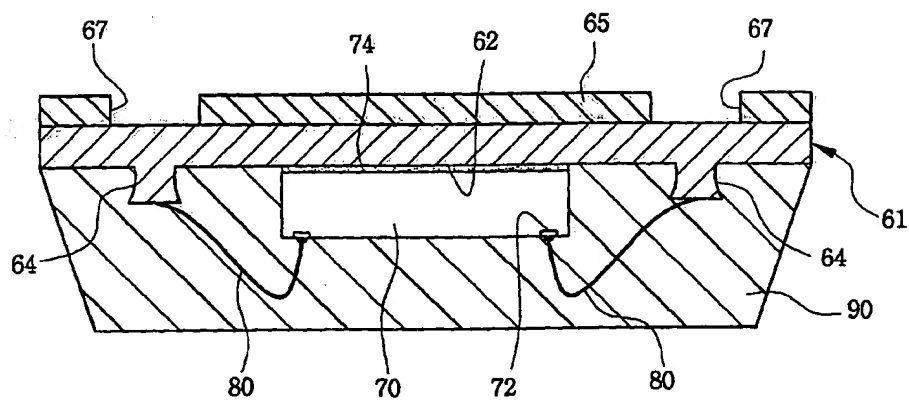


FIG. 12

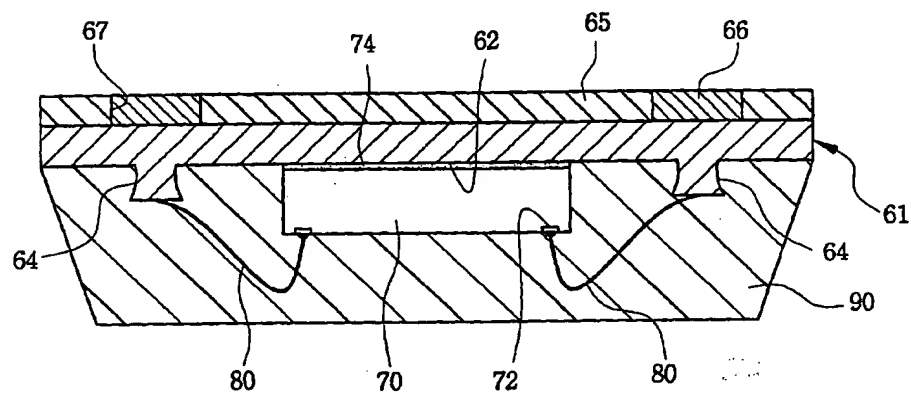


FIG. 13

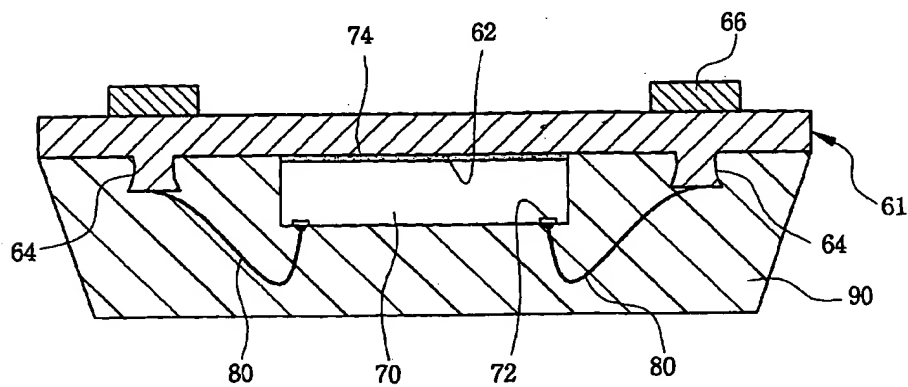


FIG. 14

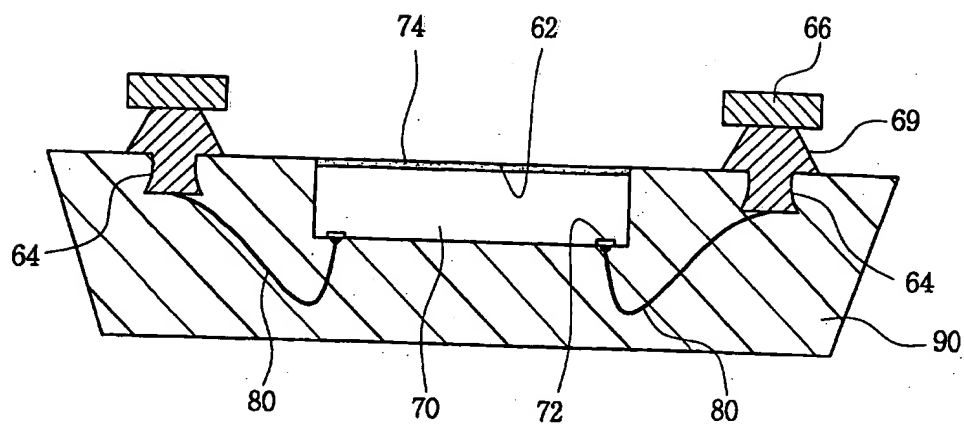


FIG. 15

